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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 11560 (1995): Hydraulic fluid power - Cylinders - Rod end plain eyes - Mounting Dimensions [PGD 16: Fluid Power]

“ज्ञान से एक नये भारत का निर्माण”

Satyanaaranay Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartṛhari—Nītiśatakam

“Knowledge is such a treasure which cannot be stolen”



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IS 11560 : 1995
ISO 6981 : 1992

भारतीय मानक

द्रव चालित तरल पावर — सिलिंडर — छड़ शिरा सपाट
छेद — आरोपण आयाम
(पहला पुनरीक्षण)

Indian Standard

HYDRAULIC FLUID POWER — CYLINDERS — ROD
END PLAIN EYES — MOUNTING DIMENSIONS
(*First Revision*)

UDC 621.226 : 621.8.032

भारतीय मानक

BUREAU OF METALLIC STANDARDS
MANAK BHAVAN, 9, BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 6981 : 1992 'Hydraulic fluid power — Cylinders — Rod end plain eyes—Mounting dimensions', issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendation of the Hydraulic Fluid Power Systems Sectional Committee and approval of the Production Engineering Division Council.

This Indian Standard was first published in 1985 and was based on ISO 6981 : 1982 'Hydraulic fluid power—Cylinders—Rod end plain eyes— Mounting dimensions'. Consequent upon the revision of above ISO standard, the sectional committee dealing with the subject decided to revise the Indian Standard by adopting the revised ISO standard under dual numbering system.

The text of the ISO Standard has been approved as suitable for publication as Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following :

- a) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.
- b) Comma (,) has been used as a decimal marker in the International Standard while in Indian Standards, the current practice is to use point (.) as the decimal marker.

CROSS REFERENCES

In the adopted standard reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their respective place are listed below along with their degree of equivalence for the editions indicated :

<i>International Standard</i>	<i>Corresponding Indian Standard</i>	<i>Degree of Correspondence</i>
ISO 286-2 : 1988 ISO system of limits and fits — Part 2 : Tables of standard tolerance grades and limit deviations for holes and shafts	IS 919 (Part 2) : 1993/ISO 286-2 : 1988 ISO systems of limits and fits : Part 2 Tables of standard tolerance grades and limit deviations for holes and shafts (<i>first revision</i>)	Identical
ISO 3320 : 1987 Fluid power systems and components — Cylinder bores and piston rod diameters — Metric series	IS 8208 : 1976 Sizes for cylinder bores and piston rod diameter for fluid power system	Technically equivalent
ISO 5598 : 1985 Fluid power systems and components — Vocabulary	IS 10416 : 1992/ISO 5598 : 1985 Fluid power systems and components — Vocabulary	Identical
ISO 6020-1 : 1981 Hydraulic fluid power — Single rod cylinders — Mounting dimensions — 160 bars (16 000 kPa)	IS 11003 : 1984 Recommendations for mounting dimensions for hydraulic fluid power — Single rod cylinders 160 bar medium series bore 25 to 500 mm	Technically equivalent

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Indian Standard

HYDRAULIC FLUID POWER — CYLINDERS — ROD END PLAIN EYES — MOUNTING DIMENSIONS *(First Revision)*

1 Scope

This International Standard specifies the mounting dimensions required for interchangeability of rod end plain eyes of hydraulic cylinders. The rod end plain eyes have been designed specifically for use with cylinders manufactured in accordance with ISO 6020-1 and ISO 6022, but this does not limit their application.

The plain bearing end eyes are used on piston rods of hydraulic cylinders for mechanically transmitting the cylinder force. The design of these eyes is based on the maximum forces resulting from the specified internal diameters of the cylinders and pressures according to ISO 3320 and ISO 3322.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 286-2:1988, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*.

ISO 3320:1987, *Fluid power systems and components — Cylinder bores and piston rod diameters — Metric series*.

ISO 3322:1985, *Fluid power systems and components — Cylinders — Nominal pressures*.

ISO 5598:1985, *Fluid power systems and components — Vocabulary*.

ISO 6020-1:1981, *Hydraulic fluid power — Single rod cylinders — Mounting dimensions — 160 bar (16 000 kPa) series — Part 1: Medium series*.

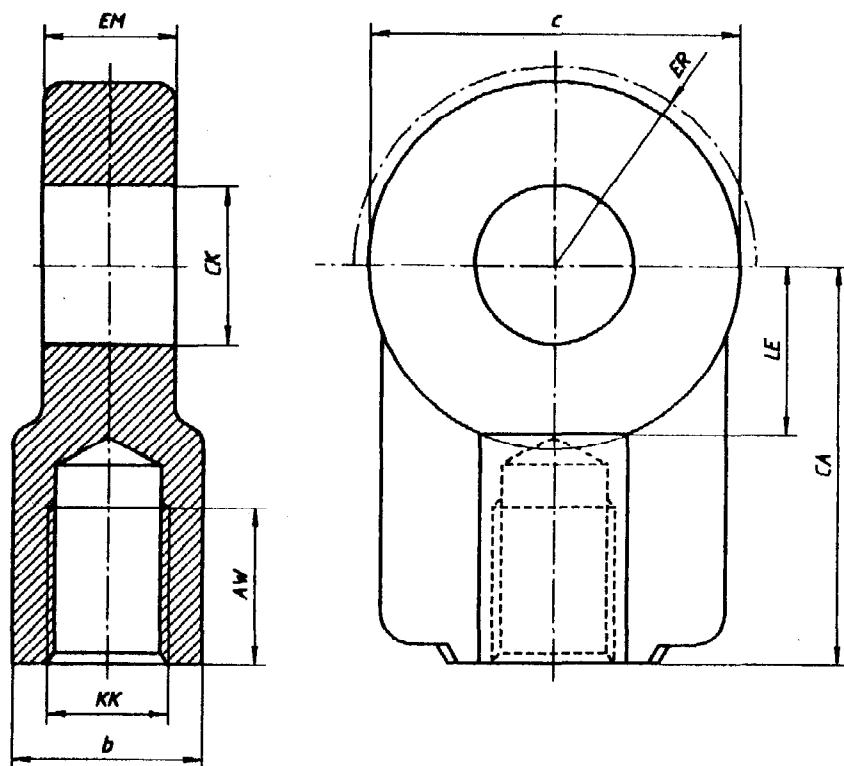
ISO 6022:1981, *Hydraulic fluid power — Single rod cylinders — Mounting dimensions — 250 bar (25 000 kPa) series*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 5598 apply.

4 Mounting dimensions

See figure 1 and table 1.



NOTE — A suitable locking device shall be used.

Figure 1 — Rod end plain eyes

Table 1 — Dimensions of rod end plain eyes

Dimensions in millimetres

Type	Nominal force N	CK H9 ¹⁾	EM h12 ¹⁾	KK	AW min.	CA	LE	c max.	ER	b
10	5 000	10	10	M10 × 1,25	14	37	14	32	16	15
12	8 000	12	12	M12 × 1,25	17	38	14	32	16	16
16	12 500	16	16	M14 × 1,5	19	44	18	40	20	21
20	20 000	20	20	M16 × 1,5	23	52	22	50	25	25
25	32 000	25	25	M20 × 1,5	29	65	27	62	32	30
32	50 000	32	32	M27 × 2	37	80	32	76	40	38
40	80 000	40	40	M33 × 2	46	97	41	97	50	47
50	125 000	50	50	M42 × 2	57	120	50	118	63	58
63	200 000	63	63	M48 × 2	64	140	62	142	71	70
80	320 000	80	80	M64 × 3	86	180	78	180	90	90
100	500 000	100	100	M80 × 3	96	210	98	224	112	110
125	800 000	125	125	M100 × 3	113	260	120	290	160	135
160	1 250 000	160	160	M125 × 4	126	310	150	346	200	165
200	2 000 000	200	200	M160 × 4	161	390	195	460	250	215
250	3 200 000	250	250	M200 × 4	205	530	265	640	320	300
320	5 000 000	320	320	M250 × 6	260	640	325	750	375	360

1) See ISO 286-2.

5 General requirements

5.1 Material

5.1.1 Rod end plain eyes shall be made of material having a minimum yield point $R_{p0,2}$ of 250 N/mm² and an elongation at rupture, A min., of at least 12 %.

5.2 Load capacity

All cross-sections shall be selected so that, under the maximum tensile load produced by the cylinder, the yield strength of the material used for the rod end is at least 2,5 times the maximum tensile load.

6 Mounting instructions

6.1 Shaft

A tolerance of f8 is recommended for plain bearing shafts (see ISO 286-2).

6.2 Fitting

The rod end plain eye shall be screwed firmly against the piston rod shoulder before locking.

7 Example of ordering designation

A rod end plain eye with a bore $CK = 25$ mm shall be designated as:

Rod end ISO 6981 - 25

8 Identification statement (Reference to this International Standard)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this International Standard:

"Cylinder rod end spherical eye mounting dimensions selected in accordance with ISO 6981:1992, *Hydraulic fluid power — Cylinders — Rod end plain eyes — Mounting dimensions*."

Annex A
(informative)

Bibliography

[1] ISO 6099:1985, *Fluid power systems and components — Cylinders — Identification code for mounting dimensions and mounting types*.

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The technical committee responsible for the preparation of this standard has reviewed the provisions of following ISO/IEC standards and has decided that they are acceptable for use in conjunction with this standard:

ISO 3322 : 1985	Fluid power systems and components — Cylinders — Nominal pressures
ISO 6022 : 1981	Hydraulic fluid power — Single rod cylinders — Mounting dimensions — 250 bar (25 000 kPa) series
ISO 6099 : 1985	Fluid power systems and components — Cylinders — Identification code for mounting dimensions and mounting types